

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percent-age of normal.	Current month.	Accumulated since Jan. 1.
<i>Inches.</i>					
New England.....	12	2.53	66	- 1.3	- 0.9
Middle Atlantic.....	16	3.08	69	- 1.4	+ 0.9
South Atlantic.....	11	5.40	88	- 0.7	- 3.9
Florida Peninsula*.....	8	8.25	123	+ 1.5	+ 2.0
East Gulf.....	11	4.86	100	0.0	+ 7.0
West Gulf.....	10	2.27	76	- 0.7	+ 9.1
Ohio Valley and Tennessee.....	13	2.29	68	- 1.2	+ 3.0
Lower Lakes.....	10	2.08	70	- 0.9	+ 2.7
Upper Lakes.....	12	2.88	97	- 0.1	+ 0.9
North Dakota*.....	9	3.05	136	+ 0.8	+ 0.7
Upper Mississippi Valley.....	15	2.46	58	- 1.8	+ 0.6
Missouri Valley.....	12	1.88	56	- 1.5	+ 1.1
Northern slope.....	9	0.74	60	- 0.5	+ 0.8
Middle slope.....	6	1.16	47	- 1.3	- 2.5
Southern slope*.....	8	1.41	59	- 1.0	- 6.3
Southern Plateau*.....	11	3.06	196	+ 1.5	0.0
Middle Plateau*.....	10	1.45	193	+ 0.7	+ 0.3
Northern Plateau*.....	12	0.32	82	- 0.2	- 0.1
North Pacific.....	7	0.76	100	0.0	- 2.0
Middle Pacific.....	7	T.	100	0.0	+ 6.7
South Pacific.....	4	T.	100	0.0	+ 5.2

*Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.		Average.	Departure from the normal.
			Average.	Departure from the normal.		
Missouri Valley.....						
New England.....	75	- 7	Missouri Valley.....	64	- 3	
Middle Atlantic.....	71	- 0	Northern slope.....	56	+ 4	
South Atlantic.....	81	+ 1	Middle slope.....	59	0	
Florida Peninsula.....	83	+ 2	Southern slope.....	61	0	
East Gulf.....	78	- 2	Southern Plateau.....	50	+ 3	
West Gulf.....	69	- 6	Middle Plateau.....	47	+ 14	
Ohio Valley and Tennessee.....	73	+ 1	Northern Plateau.....	39	- 3	
Lower Lakes.....	68	- 3	North Pacific.....	74	+ 7	
Upper Lakes.....	76	+ 1	Middle Pacific.....	58	- 9	
North Dakota.....	71	+ 7	South Pacific.....	63	- 3	
Upper Mississippi Valley.....	69	- 1				

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Block Island, R. I.....	17	54	e	Pierre, S. Dak.....	6	50	se.
Charleston, S. C.....	16	50	nw.	Pt. Reyes Light, Cal.....	20	53	nw.
Corpus Christi, Tex.....	27	56	e.	Do.....	22	54	nw.
Detroit, Mich.....	15	60	nw.	Do.....	23	50	nw.
Indianapolis, Ind.....	27	58	s.	Do.....	31	54	nw.
Mt. Tamalpais, Cal.....	22	66	nw.	Sand Key, Fla.....	24	56	se.
Pensacola, Fla.....	19	63	s.	Do.....	25	54	se.
Do.....	23	60	se.	Tatoosh Island, Wash.....	25	53	s.
Do.....	28	53	n.				

RIVERS AND FLOODS.

There were no floods of great consequence in the United States during the month. Heavy rains from the 1st to the 3d, inclusive, over the South Atlantic States caused decided rises in the rivers of the Carolinas and Georgia and flood stages in the Wateree and Santee rivers. Warnings were issued in ample time to protect all interests, and no damage was done as the waters were not sufficiently high to injure crops.

The great rivers of the country fell steadily, as a rule, but there was sufficient water for purposes of navigation in nearly all localities.

Torrential rains in the mountain districts of Colorado, New Mexico, and Arizona, from the 16th to the 18th, were soon followed by swollen streams that filled the canons and arroyos, and overflowed banks generally. In some places in the Canon of the Arkansas River in Colorado the stages were the highest of record, and the total losses were about \$250,000, divided as follows:

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	5.2	+ 0.2	Missouri Valley.....	3.0	- 1.1
Middle Atlantic.....	4.6	- 0.5	Northern slope.....	3.2	- 0.7
South Atlantic.....	4.8	- 0.4	Middle slope.....	4.3	+ 0.5
Florida Peninsula.....	6.2	+ 1.0	Southern slope.....	4.1	+ 0.2
East Gulf.....	4.8	- 0.4	Southern Plateau.....	4.4	+ 0.7
West Gulf.....	3.8	- 0.2	Middle Plateau.....	4.0	+ 0.7
Ohio Valley and Tennessee.....	3.9	- 0.6	Northern Plateau.....	2.0	- 0.3
Lower Lakes.....	4.0	- 0.6	North Pacific.....	4.2	- 0.4
Upper Lakes.....	5.1	+ 0.4	Middle Pacific.....	2.9	- 0.7
North Dakota.....	3.3	- 0.7	South Pacific.....	1.8	- 1.0
Upper Mississippi Valley.....	3.4	- 0.8			

RAINFALL IN JAMAICA.

Through the kindness of Mr. Maxwell Hall, meteorologist to the government of Jamaica and now in charge of the meteorological service of that island, we have received the following data:

Comparative table of rainfall.

[Based upon the average stations only.]

AUGUST, 1908.

Divisions.	Relative area.	Number of stations.	Rainfall.	
			1908.	Average.
Northeastern division.....	25	17	Inches.	Inches.
Northern division.....	22	41	8.60	7.57
West-central division.....	26	20	6.15	4.44
Southern division.....	27	26	10.78	9.52
Means.....		100	7.03	6.68

The rainfall for the island for the month of August was therefore an inch and a half above the average. The heaviest rainfall, 19.90 inches, was recorded at Glasgow Estate, and the least was 1.23 inches, at Pedro Plains.

Property other than crops.....	\$170,000
Crops.....	25,000
Soil erosion, or deposit.....	5,000
Suspension of business.....	50,000
Total.....	\$250,000

As is usual in floods of this character, the railroads were the principal sufferers. Owing to the extreme rapidity with which these mountain floods originate and move, it is impossible to forecast their approach, and therefore there were no warnings issued except for that portion of the Arkansas River from Salida to Pueblo, Colo.

The terrible disaster that visited the city of Monterey Mexico, on August 28 was due to an enormous rise in the Santa Catarina River that traverses the narrow valley in which the city of Monterey is situated. A tropical storm that had moved across the Gulf of Mexico and had reached the mainland on the 27th was the exciting cause, and for three days an enormous

quantity of rain fell throughout the Santa Catarina watershed, which is flanked by high mountains. The flood is said to have been the greatest since that of 1881.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on

the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Professor of Meteorology.*

SPECIAL PAPERS ON GENERAL METEOROLOGY.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a —.

Algúe, José.

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Apia (Samoa). Observatorium.

Bericht ... 1908. (Aus den Nachrichten der K. Gesellschaft der Wissenschaften zu Göttingen. Geschäftliche Mitteilungen. 1909. Heft 1. 3 p.)

Berecz, El. de, & Pécsi, A.

Les observations sismiques de Hongrie. 4 p. 8°.

Bührer, C.

... Le climat de la Haute-Savoie. Lausanne. 1901. p. 133-211. 8°. (Bulletin de la Société vaudoise des sciences naturelles. 4 s. v. 37. no. 139.)

... Le climat de Montreux. (Separatabdruck aus Heft 1 der "Annalen der Schweiz. balneologischen Gesellschaft." 6 p. 8°.)

Le climat du Valais. Sion. 1898. 229 p. 8°. (Extrait du Bulletin des travaux de la Murithienne. Société valaisanne des sciences naturelles.)

... La température de Montreux. Lausanne. 1908. p. 83-85. 8°. (Bull. de la Soc. vaudoise des sci. nat. 5 sér. v. 44. Mars 1908. no. 162.)

Catania. R. osservatorio.

Osservazioni meteorologiche 1908. (Dagli Atti dell' Accademia gioenia di scienze naturali in Catania. Serie 5. v. 2. 7 p.)

Craig, J. I.

The prediction of Nile floods. Alexandria. 1909. 7 p. 4°. (Reprinted from "The Cairo scientific journal," no. 34. v. 3, July, 1909.)

Finland. Institut météorologique central de la Société des sciences de Finlande.

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Observations météorologiques ... État des glaces et des neiges ... 1896-1897, 1897-1898. 2 v. Helsingfors. 1908-1909. f°.

Giorgi, Cosimo de.

La distribuzione della pioggia sulla penisola Salentina. Lecce. 1908. 71 p. 4°.

Goreczynski, Wl.

... Średnie piętnastoletnie (1887-1901) opadów i temperatury dla okręgów eukrowniczych. Warszawa. 1908. 9 p. 4°. (Wiadomości z Biura meteorologicznego przy Muzeum w Warszawie.)

... O stosunkach klimatycznych Egiptu i Sudanu Wschodniego. Warszawa. 1909. 39 p. 4°. (Odbitka z "Wiadomości Matematycznych." T. 13.)

... O wartościach pięcioleciowych opadów i temperatury dla okręgów eukrowniczych w okresie 1902-7. Warszawa. 1908. 7 p. (Wiadomości z Biura meteorologicznego przy Muzeum a Warszawie.)

Great Britain. Meteorological office.

The observer's handbook ... 1909. London. 1909. 154 p. 8°.

Guilbert, Gabriel.

Nouvelle méthode de prévision du temps. Paris. 1909. xxxviii, 343 p. 8°.

Guzzanti, C.

... Le diverse forme delle nubi ... Padova. 1904. 20 p. f°.

Hall, A. D.

The soil. An introduction to the scientific study of the growth of crops. 2d ed., rev. and enl. New York. 1908. xv, 311 p. 8°.

Hall, Maxwell.

4th report on earthquakes in Jamaica. Jamaica. 1909. 23 p. f°.

Hahn, Martin.

... Die Bestimmung und meteorologische Verwertung der Keimzahl in den höheren Luftsichten. Nach von Luftballon aus angestellten Beobachtungen. (Abdruck aus dem Centralblatt f. Bakteriologie, Parasitenkunde u. Infektionskrankheiten. 1. Abt. 51. Bd. 1909. Heft 2. p. 97-114.)

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Om den allmänna cirkulationen i atmosfären. (Nordisk tidskrift för vetenskap konst & industri. 1908. Sjunde häftet. Stockholm. [1908.] p. 491-521. 8°.)

Holtzman, G.

Om varmens og nedbørens inflydelse paa udbyttet af akerveksterne. (Foredrag ved den 3de Nordiske landbrugskongres i Kristiania 1907. 30, 3 p.)

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... Report of proceedings at a meeting of the Commission for maritime weather signals, held in London on June 22-25, 1909. London. 1909. 8, 21 p. 8°.

... Report of proceedings at a meeting of the Commission for weather telegraphy, held in London on June 21-24, 1909. London. 1909. 33 p. 8°.

Jans, C. de.

Les tentatives d'explication de la foudre globulaire. Bruxelles. 1909. 46 p. 8°. (Extrait du Bulletin de la Société belge d'électriciens. Mars 1909.)

Johansson, Osc. V.

Berättelse över Finska vetenskaps-societetens meteorologiska centralanstalts verksamhet under år 1907. (Översigt af Finska vetenskaps-societetens förhandlingar. L. 1907-1908. N:o 16.)

Kertomus suomen tiedeseuran meteorologischen keskusleitoksen toiminnasta v. 1907. (Översigt af Finska vetenskaps-societetens förhandlingar. L. 1907-1908. N:o 16.)

Den normala nederbördens och torkan är 1908 i Finland. 26 p. 8°. Sonnenschein-dauer und Bewölkung in Helsingfors. (Översigt af Finska vetenskaps-societetens förhandlingar. L. 1907-1908. N:o 13.)

... Temperatur- und Niederschlagstaten für 8 finnische Orte. Helsingfors. 1909. 23 p. f°. (Sonderabdruck aus Meteorologisches Jahrbuch für Finland. Jahrg. 1902. Wissenschaftliche Beilage.)

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... La propagation des ondes sismiques. (Extrait de la Revue générale des sciences des 15 et 30 juillet 1907. Paris. 21 p.)

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Observations ... 1907. Moscow. 1909. xxxv, 72 p. 4°.

Natal. Government astronomer.

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... Die Luftschiffahrt. Leipzig. 1909. 152 p. 12°.

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Osaka (Japan). Meteorological observatory.

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Pabst, Wilhelm.

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Prague. K. k. Sternwarte.

Magnetische und meteorologische Beobachtungen ... 1908. 69. Jahrg. Prag. 1909. 47 p. f°.

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... Ergebnisse Beobachtungen an den Stationen II. und III. Ordnung im Jahre 1904. Berlin. 1909. xvii, 77-206 p. (Veröffentlichungen ... Nr. 210.)

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